

August 2001

ARM Facilities Newsletter

ANL/ER/NL-01-08



Summer 2001 Heat Wave

This summer has proved to be downright hot in the Southern Great Plains states. The temperatures soared to record-setting levels. The state of Oklahoma saw its fourth hottest July since 1895, while Kansas experienced its seventh warmest. The average temperature throughout most of Oklahoma for the month of July was 2.5-5.5°F above normal. The highest temperature recorded in the region during July was 107°F in Oklahoma City. Wichita, Kansas, had 17 July days with recorded temperatures of 100°F or above, while Medicine Lodge, Kansas, had 21. In addition, Oklahoma suffered its ninth driest July, with precipitation levels much below normal. Kansas fared better, receiving above-normal precipitation amounts. Nevertheless, regional July rainfall averaged 1.5-3.0 inches below normal.

Not only is a summer heat wave uncomfortable, but it can also be

dangerous. The National Weather Service (NWS) has increased efforts to alert the public to the hazards of heat waves. Prolonged excessive heat and humidity stress the human body and can, in some cases, cause death.

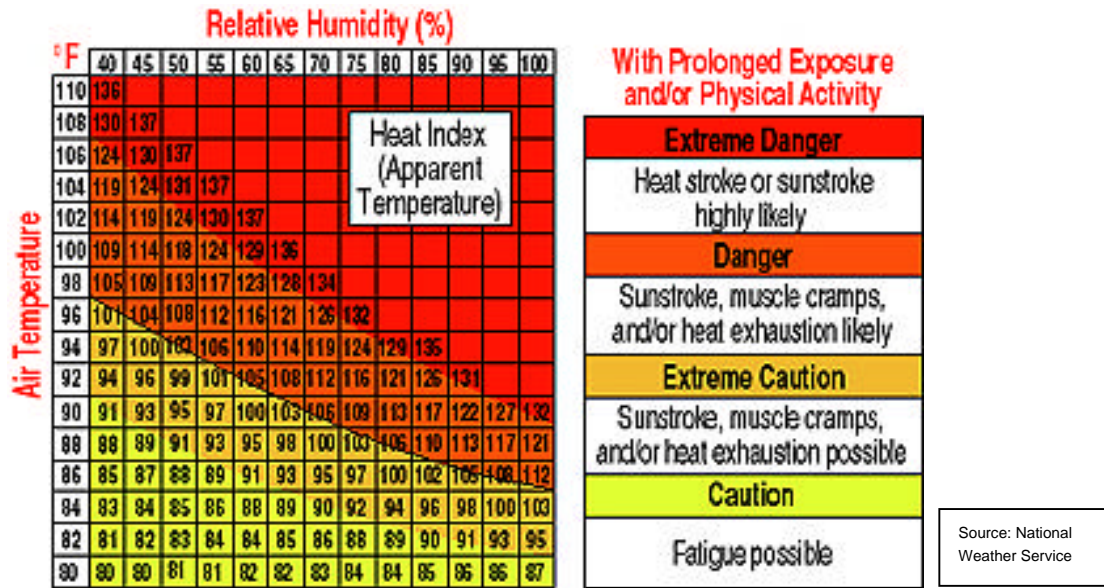
The NWS has devised a heat index that is a measure of the heat we perceive as a function of air temperature and humidity. A heat index chart displays different zones from caution to extreme danger, much like a wind chill index chart used in the winter. The values represent conditions of light winds and shade. Thus, in full sunshine heat index values can increase by 15°F. Exposure to winds in hot, dry weather can be equally dangerous. The NWS sends out alerts when the heat index is expected to reach values with significant potential impact.

The danger of heat-related illness increases with the number of consecutive days with high heat and humidity levels. Heat and humidity take their toll faster on the elderly, small children, and those with respiratory health problems.

ARM Facilities Newsletter is published by Argonne National Laboratory, a multiprogram laboratory operated by The University of Chicago under contract W-31-109-Eng-38 with the U.S. Department of Energy.

Technical Contact: James C. Liljegren

Editor: Donna J. Holdridge



Heat-related illnesses come in several forms with different symptoms. From common sunburns to heat stroke, these heat disorders need to be addressed promptly. Sunburn is something most of us have experienced. Severe burns can be dangerous and should be treated by a physician.

Heat cramps (painful muscle cramps, usually of the leg muscles) are typically accompanied by heavy sweating. Heat exhaustion symptoms include sweating; weakness; cold, pale, clammy skin; fainting; and vomiting. Heat stroke (also called sunstroke), the most serious heat disorder, can cause the body temperature to rise to 106°F or higher. The skin becomes hot and dry, and the pulse is

rapid. Heat stroke is a severe medical emergency and can be fatal.

Everyone can take common-sense precautions to ease the danger of a heat wave. Reduce strenuous exercise and outdoor activities. Reschedule these activities for a cooler time of day or move them to an air-conditioned indoor location. Wear lightweight, light-colored clothing to help maintain a normal body temperature and reflect sunlight and heat. Drink plenty of non-alcoholic fluids, especially water, to help maintain good hydration, and eat light meals. Stay out of the sun if possible and spend time in air-conditioned places to reduce the stress of summer heat.

Heat Index	Possible Heat Disorders for People in Higher-Risk Groups
80-90°F	Fatigue possible with prolonged exposure and/or physical activity.
90-105°F	Heat stroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity.
105-130°F	Heat stroke, heat cramps, or heat exhaustion likely; heat stroke possible with prolonged exposure and/or physical activity.
130°F or higher	Heat stroke highly likely with continued exposure.